# Selected Grants

# SELECTED GRANTS

**DIVISION OF SYNTHETIC CHEMISTRY**
**— Organoelement Chemistry —**

Tokitoh, N.
Creation of Novel Catalysts Centered on the Coordination Diversity of Heavy Typical Elements
Grant-in-Aid for Scientific Research on Innovative Area "Stimuli-responsive Chemical Species for the Creation of Functional Molecules"
28 June 2012–31 March 2017

Tokitoh, N.
Electron-state Control of Aromatic Compounds Containing Heavier Group 14 Elements by Substituent Introduction and Element Substitution
Grant-in-Aid for Scientific Research (B)
1 April 2013–31 March 2016

Tokitoh, N.
Development of Pt–Silylyne Complexes and Their Application to Synergetic and Tandem Activation of Small Molecules
Grant-in-Aid for Challenging Exploratory Research
1 April 2012–31 March 2014

Tokitoh, N.
Construction of Polycyclic Aromatic Compounds Containing Heavier Group 14 Elements and Development of Their Functions by Utilizing the Features of Main Group Elements
Grant-in-Aid for Scientific Research (B)
1 April 2010–31 March 2013

Sasamori, T.
Construction of [2]Ferrocenophanes Linked by π-Bond between Heavier Group 14 Elements and Control of Their Ring-opening Polymerization
Grant-in-Aid for Scientific Research on Innovative Area "Emergent Chemistry of Nano-scale Molecular Systems" and "New Polymeric Materials Based on Element-Blocks"
1 April 2013–31 March 2015

Sasamori, T.
Construction of Novel d-π Conjugated Systems Containing Heavier Main Group Elements and Their Functions
Grant-in-Aid for Young Scientists (A)
1 April 2011–31 March 2014

Mizuhata, Y.
Synthesis of Phthalocyanine Derivatives Bearing Phosphorus Atoms as Skeletal Elements and Their Properties
Grant-in-Aid for Scientific Research on Innovative Area "π-Space"
1 April 2011–31 March 2013

Agou, T.
Bottom-up Syntheses of Electron-Deficient Aluminum Clusters and Elucidation of Their Properties
Grant-in-Aid for Scientific Research (C)
1 April 2012–31 March 2015

**— Structural Organic Chemistry —**

Murata, Y.
Synthesis of Tailor-made Nanocarbons and Their Application to Electronic Devices
Grant-in-Aid for Scientific Research (A)
1 April 2011–31 March 2016

Murata, Y.
Molecular Interface Science of π-Conjugated Carbon Complexes on Non-Equilibrated States
PRESTO (Precursory Research for Embryonic Science and Technology), JST
1 October 2012–31 March 2016

Murata, Y.
Creation and Function of Spherical π-Space Encapsulating an Active Small Molecule
Grant-in-Aid for Scientific Research on Innovative Areas "π-Space"
1 December 2008–31 March 2013

Murata, Y.
Creation of Paramagnetic Endofullerenes by Organic Synthesis
Grant-in-Aid for Challenging Exploratory Research
1 April 2012–31 March 2014

Wakamiya, A.
Development of Organic Dyes Based on Fine Tuning of π-Orbitals Using DFT Calculations
PRESTO (Precursory Research for Embryonic Science and Technology), JST
1 October 2010–31 March 2016

Wakamiya, A.
Creation of Wireless Electric Power Supply
Center of Innovation Program (COI)
1 October 2013–31 March 2022

Murata, M.
Synthesis of Electron-Accepting π-Systems Containing Fulvalene as a Key Structural Unit
Grant-in-Aid for Scientific Research (B)
1 April 2012–31 March 2015

Abbreviations and acronyms

JST : Japan Science and Technology Agency
MEXT : Ministry of Education, Culture, Sports, Science and Technology
METI : Minister of Economy, Trade and Industry
NEDO : New Energy and Industrial Technology Development Organization

**— Synthetic Organic Chemistry —**

Kawabata, T.
Fine Organic Synthesis Based on Catalytic Regioselective Functionalization
Grant-in Aid for Scientific Research (A)
1 April 2009–31 March 2013

Kawabata, T.
Regioselective Molecular Transformation Based on Organocatalytic Molecular Recognition
Grant-in Aid for Scientific Research on Innovative Area
1 October 2011–31 March 2015

Furuta, T.
Development of Regio- and Stereoselective Reactions of Polyfunctionalized Molecules by Axially Chiral Catalysts
Grant-in-Aid for Scientific Research (C)
28 April 2011–31 March 2014

Yoshimura, T.
Synthesis of Novel Amino Acids and Natural Products Derived from Amino Acids via Memory of Chirality
Grant-in-Aid for Young Scientists (B)
28 April 2011–31 March 2013

**— Advanced Inorganic Synthesis —**

Teranishi, T.
Development of Structure-Specific Energy-Related Functional Materials Using Heterostructured Nanoparticles
Grant-in-Aid for Scientific Research (A)
1 April 2011–31 March 2014

Teranishi, T.
Study on Correlation between Structure and Hydrogen Storing Properties of Palladium Nanoparticles
Grant-in-Aid for Challenging Exploratory Research
1 April 2012–31 March 2014

Teranishi, T.
Synthesis of Macrocyclic π-Conjugated Ligand-Protected Gold Clusters and Fabrication of Nano-Gap Single Electron Devices
CREST (Core Research for Evolutional Science and Technology), JST
1 October 2008–31 March 2014

Teranishi, T.
Establishment of Deeply Penetrating Photoacoustic Imaging Technology Based on Fucntional Probes: Design and Synthesis of Activatable Probes and Development of in vivo Imaging Technology
Industry-Academia Collaborative R&D Programs, JST
1 December 2011–31 March 2017

Teranishi, T.
Synthesis of Magnetic Nanoparticles for Creating Novel Nanocomposite Magnetic Materials
Elements Strategy Initiative, MEXT
1 July 2012–31 March 2022

Teranishi, T.
Research on Nanoscale Phase-Controlled Nanocomposite Magnets
Mirai Kaitaku Research Project, METI
1 October 2012–31 March 2022

Teranishi, T.
Development of Green Sustainable Chemical Process
Mirai Kaitaku Research Project, METI
1 November 2012–31 March 2022

Sakamoto, M.
Fabrication of Nanocrystal Superstructure toward Novel Artificial Photosynthesis
Precursory Research for Embryonic Science and Technology, JST
1 April 2012–31 March 2015

Sakamoto, M.
Research for the Photochemical Functions of Porphyrin Face-Coordinated Metal Nanoparticles
Grant-in-Aid for Scientific Research(C)
1 April 2013–31 March 2015

**DIVISION OF MATERIALS CHEMISTRY**
**— Chemistry of Polymer Materials —**

Tsujii, Y.
Development of Novel Nanosystem by Hierarchically Assembling Concentrated Polymer Brushes
CREST (Core Research for Evolutional Science and Technology), JST
1 October 2009–31 March 2015

Tsujii, Y.
Super Lubrication of Novel Nano-Brushes
Advanced Environmental Materials of Green Network of Excellence (GRENE) Program, MEXT
6 December 2011–31 March 2016

Tsujii, Y.
Development of High-Performance Li-ion Batteries Using High-capacity, Low-cost Oxide Electrodes
Industrial Technology Research Grant Program, NEDO
1 October 2012–31 March 2017

Tsujii, Y.
High-Reliable Li-ion Battery Electrolytes Supported with Well-Designed Polymeric Monoliths
NEDO Project for New Energy Venture Business Technology Innovation Program
1 April 2013–28 February 2014

Ohno, K.
Development of Next-Generation MRI Contrast Agent
Industrial Technology Research Grant Program, NEDO
1 July 2009–30 June 2013

Ohno, K.
Pharmacokinetics of Well-Defined Polymer Brush-Afforded Fine Particles
Grant-in Aid for Young Scientists (A)
1 April 2011–31 March 2014

Ohno, K.
Development of Molecular Targeted MRI Contrast Agent
A-STEP (Adaptable and Seamless Technology Transfer Program through Target-Driven R&D), JST
1 October 2012–30 September 2015

Ohno, K.
Development of Ionic Liquid-Containing Blend Films
PRESTO (Precursory Research for Embryonic Science and Technology), JST
1 October 2013–31 March 2017

Sakakibara, K.
Construction of Photoresponsive Cellulosic Nanostructures via Polysaccharide-Based Hierarchic Assembly
Grant-in-Aid for Young Scientist (B)
1 April 2012–31 March 2014

**— Polymer Controlled Synthesis —**

Yamago, S.
Creation of Hoop-shaped π-Conjugated Molecules through the Supramolecular Chemical Approach and Elucidation of Their Properties
CREST (Core Research for Evolutional Science and Technology), JST
1 October 2010–31 March 2016

**— Inorganic Photonics Materials —**

Yoko, T.
Organic-inorganic Material for Biosensor Application
Grant-in-Aid for Challenging Exploratory Research
1 April 2011–31 March 2014

**—Nanospintronics —**

Ono, T.
Development of Novel Spin Dynamics Devices
Grant-in-Aid for Scientific Research (S)
1 April 2011–31 March 2016

**DIVISION OF BIOCHEMISTRY**
**— Biofunctional Design-Chemistry —**

Futaki, S.
Library Design for Targeting HTLV-1 Related Proteins and the Selection
Grant-in-Aid for Challenging Exploratory Research
1 April 2013–31 March 2015

Imanishi, M.
Construction of Rhythmic Gene Expression Systems Based on the Cellular Clock
Grant-in-Aid for Scientific Research on Innovative Areas
1 April 2012–31 March 2014

Takeuchi, T.
Structure-activity Relationship Study of Membrane Proteins by Regulation of Their Oligomer Formation
Grant-in-Aid for Research Activity Start-up
1 October 2013–31 March 2015

**— Chemistry of Molecular Biocatalysts —**

Hiratake, J.
Search for Pharmaceuticals Based on Asparagine Synthetase Inhibitors
Grant-in-Aid for Scientific Research (C)
1 April 2011–31 March 2013

**— Molecular Biology —**

Aoyama, T.
Regulatory Mechanisms for Functional Morphologies of Plants
Bilateral Program for Joint Research between JSPS and NSFC
1 April 2012–31 March 2015

Tsuge, T.
Regulatory Mechanism of Plant Morphogenesis by Regulators of mRNA Metabolism
Grant-in-Aid for Scientific Research (C)
1 April 2013–31 March 2015

**DIVISION OF ENVIRONMENTAL CHEMISTRY**
**— Molecular Materials Chemistry —**

Kaji, H.
Structure and Function of Organic Thin-Film Solar Cells: Specially-Shaped Polymers and Hierarchical Structure Analysis
Grant-in-Aid for Scientific Research (A)
1 April 2013–31 March 2016

Goto, A.
High Performance Color Material by Living Radical Polymerization with Organic Catalysts
A-STEP (Adaptable and Seamless Technology Transfer Program through Target-Driven R&D), JST
1 November 2011–31 March 2015

**— Hydrospheric Environment Analytical Chemistry —**

Sohrin, Y.
Ocean Section Study in the Pacific Ocean, Indian Ocean and Japan Sea Using Multielemental Analysis of Trace Metals
Grant-in-Aid for Scientific Research (A)
1 April 2012–31 March 2015

**— Solution and Interface Chemistry —**

Hasegawa, T.
Structural Analysis and Control of an Organic Thin Film of Solar Cell Using MAIR Spectroscopy
Grant for Basic Science Research Projects, Sumitomo Foundation
1 November 2012–30 November 2013

Hasegawa, T.
Generation of a New Energy State by Excitation of Multipole via Light Absorption and Its Application to Surface-enhance Raman Scattering Spectrometry
Grant-in-Aid for Scientific Research (B)
1 April 2011–31 March 2014

Hasegawa, T.
Operando Analysis of Concentration and Diffusion of Negatively-Adsorptive Chemical Species in A Monolayer Formed at An Air/Water Interface
Grant-in-Aid for Scientific Research on Innovative Areas "Molecular Sciences of Soft Interface"
1 April 2011–31 March 2013

Matubayasi, N.
Free-Energy Analysis of ATP hydrolysis
Grant-in-Aid for Scientific Research on Innovative Areas "Hydration and ATP Energy"
1 December 2008–31 March 2013

**— Molecular Microbial Science —**

Kurihara, T.
Functional Analysis and Application of Phospholipids Containing Polyunsaturated Fatty Acids in Bacterial Cell Membrane
Grant-in-Aid for Scientific Research (B)
1 April 2012–31 March 2015

Kurihara, T.
Development of Biocatalysts for Remediation of Environments Polluted with Persistent Organohalogen Compounds
Grant-in-Aid for Challenging Exploratory Research
1 April 2012–31 March 2014

Kurihara, T.
Exploration of Cold-Adapted Microorganisms to Develop the Low-temperature Bioprocessing
Grant-in-Aid for Scientific Research (B)
1 April 2013–31 March 2016

Kawamoto, J.
Exploration of Functional Metal-Nanoparticle-Producing Bacteria from Extreme Environments
Grant-in-Aid for Scientific Research (B)
1 April 2012–31 March 2015

**DIVISION OF MULTIDISCIPLINARY CHEMISTRY**
**— Polymer Materials Science —**

Kanaya, T.
Non-equilibrium Intermediate States and Polymer Crystallization–Towards Establishment of Basis for Industrial Application
Grant-in-Aid for Scientific Research (A)
1 April 2012–31 March 2017

Kanaya, T.
Photon and Quantum Basic Research Coordinated Development Program
JST
1 September 2013–31 March 2018

Nishida, K.
Property Control of Water-soluble Cellulose Derivatives
Grant-in-Aid for Scientific Research (C)
1 April 2011–31 March 2014

Nishida, K.
Control of Higher-order Structures of Polymer Materials by Fast Temperature Variation
Researcher Exchange Program between JSPS and DAAD
1 September 2013–20 October 2013

**— Molecular Rheology —**

Watanabe, H.
Nonlinear Feedback between Phase Growth and Chain Dynamics in Polymer Blends
Grant-in-Aid for Scientific Research (A)
1 April 2012–31 March 2015

Masubuchi, Y.
Relaxation of Polymer Chain under Flow
Grant-in-Aid for Scientific Research (B)
1 April 2011–31 March 2014

Matsumiya, Y.
Molecular Interpretation of Cooperative Length of Polymer Segment
Grant-in-Aid for Scientific Research (C)
1 April 2012–31 March 2015

**— Molecular Aggregation Analysis —**

Yoshida, H.
Inverse-Photoemission Spectroscopy with Zero Kinetic Energy Electrons for Measuring the Unoccupied Electronic States of Organic Semiconductors
PRESTO (Precursory Research for Embryonic Science and Technology), JST
1 October 2009–31 March 2013

**ADVANCED RESEARCH CENTER FOR BEAM SCIENCE**
**— Particle Beam Science —**

Iwashita, Y.
Innovative High-performance Ion Source by the RF Phase Direct Injection of the Short Pulse Laser Plasma
Grant-in-Aid for Challenging Exploratory Research
1 April 2012–31 March 2014

**— Laser Matter Interaction Science —**

Sakabe, S.
Demonstration of Ultra-fast Electron Diffraction Using Fast Electrons Accelerated in Plasmas by an Intense Femtosecond Laser
Grant-in-Aid for Scientific Research (S)
1 April 2011–31 March 2016

Sakabe, S.
Long-distance Acceleration of Surface Plasma Electrons Along a Metal Wire by the Surface Wave Induced by Ultra-intense Laser Pulses
Grant-in-Aid for Challenging Exploratory Research
1 April 2013–31 March 2015

Sakabe, S.
Development of Single-shot Ultrafast Electron Diffraction Using Femtosecond Electron Pulses Generated by an Ultra Intense Short Pulse Laser
The Mitsubishi Foundation
1 October 2012–30 September 2013

Sakabe, S.
Fundamental Study for Mechanism Clarification of Laser Colored Metal Surface
Amada Foundation for Metal Work Technology
15 December 2011–31 March 2014

Hashida, M.
New Functionality on Metal Surface Induced by Femtosecond Laser Ablation
Grant-in-Aid for Scientific Research (C)
1 April 2013–31 March 2016

Hashida, M.
Amorphous Metal Thin Film with the Surface of Periodic Nanostructures Self-formed by Femtosecond Laser Pulses
Grant-in-Aid for Scientific Research (C)
1 April 2010–31 March 2013

**— Electron Microscopy and Crystal Chemistry —**

KURATA, H.
Advanced Characterization Nanotechnology Platform at Kyoto University
Nanotechnology Platform Project, MEXT
2 July 2012–31 March 2022

**INTERNATIONAL RESEARCH CENTER FOR ELEMENTS SCIENCE**
**— Organic Main Group Chemistry —**

Nakamura, M.
Development of Selective Organic Synthesis Based on Iron Catalysis
Funding Program for Next Generation World-Leading Researchers (NEXT Program)
1 March 2011–31 March 2014

Takaya, H.
A Comprehensive Research on Iron- and Nickel-Catalyzed Organic Reactions: Development of New Catalyst, New Reactions, New Spectroscopic Methods
CREST (Core Research for Evolutional Science and Technology), JST
1 April 2011–31 March 2016

Takaya, H.
New Catalyst toward Biorefinery of Lignins Based on Metal-Conjugate Amino Acids and Peptides
CREST (Core Research for Evolutional Science and Technology), JST
1 April 2011–31 March 2016

Hatakeyama, T.
Synthesis of Helical π-Conjugated Molecules toward Next Generation Semiconductors
PRESTO (Precursory Research for Embryonic Science and Technology), JST
1 October 2011–31 March 2015

Hatakeyama, T.
Synthesis of Heterographene Derivatives by Tandem Hetero-Friedel-Ctafts Reactions
Grant-in-Aid for Young Scientists (A)
1 April 2011–31 March 2014

**— Advanced Solid State Chemistry —**

Shimakawa, Y.
Exploring for New Functional Materials with Unusual Ionic States and Coordinations
Creation of Innovative Functions of Intelligent Materials on the Basis of the Element Strategy
1 April 2011–31 March 2016

**— Organotransition Metal Chemistry —**

Ozawa, F.
Synthesis and Catalytic Properties of Stimulus-responsible Transition Metal Complexes Bearing Low-coordinate Phosphorus Ligands
Grant-in-Aid for Scientific Research on Innovative Areas "Stimuli-responsive Chemical Species for the Creation of Functional Molecules"
1 April 2012–31 March 2017

Ozawa, F.
Development of Highly Efficient Direct Arylation Catalysts for the Synthesis of π-Conjugated Polymers
Grant-in-Aid for Scientific Research (B)
1 April 2011–31 March 2014

Wakioka, M.
Development of Living Polymerization Based on Direct Arylation
Grant-in-Aid for Young Scientists (B)
1 April 2012–31 March 2015

Ozawa, F.
Development of Highly Efficient Catalysts for Synthesizing of π-Conjugated Polymers via Direct Arylation
ACT-C, JST
1 October 2012–31 March 2018

**— Photonic Elements Science —**

Kanemitsu, Y.
Microscopic Spectroscopy of Highly Excited State in Semiconductor Nanostructures and Exploring Novel Optical Functionality
Grant-in-Aid for Scientific Research on Innovative Areas, "Optical Science of Dynamically Correlated Electrons"
13 November 2008–31 March 2013

Kanemitsu, Y.
Evaluation of Nonradiative Carrier Recombination Loss in Concentrator Heterostructure Solar Cells
CREST (Core Research for Evolutional Science and Technology), JST
1 October 2011–31 March 2017

Tayagaki, T.
Controlling of the Many-body Interaction between Photoexcited Carriers toward Hot Carrier Solar Cells
PRESTO (Precursory Research for Embryonic Science and Technology), JST
1 October 2009–31 March 2013

Tayagaki, T.
Integration of Nanostructures in Crystalline Silicon Solar Cells for Advanced Management of Photons and Carriers
ALCA (Advanced Low Carbon Technology Research and Development Program), JST
1 October 2011–31 March 2017

**BIOINFORMATICS CENTER**
**— Chemical Life Science —**

Goto, S.
Key Technology Development for Data Integration and Application to Emerging Fields
Life Science Database Integration Project, JST
1 April 2011–31 March 2014

Kotera, M.
Reaction Network Prediction for ab initio Reconstruction of Metabolic Pathways
Biosynthesis Machinery, Grant-in-Aid for Scientific Research on Innovative Areas
1 April 2013–31 March 2015

Kotera, M.
Information Technology Development for the Comparative Genomics of Various Insects
Grant-in-Aid for Young Scientists (B)
1 April 2013–31 March 2016

**— Mathematical Bioinformatics —**

Akutsu, T.; Kawabata, T.; Nagamochi, H.; Hayashida, M.
An Approach to Novel Structural Design by Combining Discrete Methods and Kernel Methods
Grant-in-Aid for Scientific Research (A)
1 April 2010–31 March 2015

**— Bio-knowledge Engineering —**

Mamitsuka, H.
Estimating Data Structures from Various Semi-Structured Data
Grant-in-Aid for Scientific Research (B)
1 April 2012–31 March 2015

Natsume, Y.
In silico Analysis of Histone Modification Dynamics that Regulate Developmental Processes
PRESTO (Precursory Research for Embryonic Science and Technology), JST
1 October 2010–31 March 2015